GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

Office: Tribune Building, New York.

Conducted by . . . . . Professor C. S. Sargent.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, APRIL 23, 1890.

TABLE OF CONTENTS.

PAGE.

Editorial Articles:—An English Forest—Public Spirit in Horticulture—The Menagerie in Central Park 197
Native Shrubs of California, III . . . . . *Professor E. L. Greene.* 198
The Woods in Spring . . . . . *Horace Lunt.* 199
The Peruvian Potato . . . . . *R. P. Harris, M.D.* 199
Plant Note:—Cattleya Skinneri . . . . . *A. Dimmock.* 200
Foreign Correspondence:—Berlin Letter . . . . . *Udo Dammer.* 200
Cultural Department:—Hardy Rhododendrons . . . . . *H. H. Hunnewell.* 201
Notes from the Harvard Botanical Garden . . . . . *M. Barker.* 202
Wild Flowers Under Cultivation . . . . . *Rev. W. E. Hill.* 204
Hardy Plants for Cut Flowers—I . . . . . *E. O. Orpet.* 204
Endive . . . . . *W. H. Bull.* 205
Safety for Tender Trees . . . . . *Joseph Meehan.* 205
Hybrid Perpetual Roses . . . . . *E. G. Hill.* 205
Triteleia uniflora . . . . . *B.* 205
Recent Publications:—The Forests of North America.—II 205
Correspondence:—Botanical Names . . . . . *Mrs. Mary Treat.* 206
Destruction of Wild Plants by Roadsides . . . . . *Dorcas E. Collins.* 207
Fuchsia triphylla . . . . . *Thomas Hogg.* 207
Notes 207
Illustrations:—Cattleya Skinneri, Fig. 35 201
A Road in Sherwood Forest 203

An English Forest.

An old English forest is a very beautiful and interesting thing, although, judged by the standard of modern forest science, it is practically a useless encumbrance of the earth, to be cleared away that the ground it occupies may be replanted to better advantage. Such a forest is that of Sherwood, in Nottinghamshire, the most famous and historically the most interesting of all the remnants of the ancient forest-covering of Britain. A view taken in this forest appears in our illustration on page 203, and represents a portion of the high-road leading through "Bircklands," as one part of Sherwood Forest is called, because Birches grow in great numbers among the old Oaks. The forest-floor is densely covered with Bracken (*Pteris aquilina*), making a charming carpet among the trees, which stand singly, often with wide places between them and unsurrounded with young trees growing up to replace them. Deer and rabbits have frequented Sherwood Forest for centuries, and it has been pastured at times and sadly neglected and abused; every seedling-tree, as fast as it appears among the Ferns, is nibbled off and destroyed, and no successors to the great old trees have been allowed to grow up to take their place when they have lived out their long lives. Very few of the old trees are left; multitudes of them fell a century or more ago to replenish the purses of needy noblemen, and time has laid a heavy hand upon those which escaped. And now this forest, which is really not a forest at all, but rather a thickly planted park, bears about the same relation to a modern European forest that an English farm, with its wide, useless hedgerows, its broad branched Elms shading the ground, sucking up moisture from the earth and using up plant food, its game carefully protected to feed upon the crops, and all its wasteful methods of pasturage, bears to a modern German farm, in which every inch of ground is made productive and not one ounce of anything is wasted.

A drive through Sherwood Forest is one of the most delightful things an American can do in England, although he will not learn much about forestry on his trip or see many things which can be applied in his every-day life at home. A visit to Sherwood Forest and "the Dukeries," as a number of country places made in what was once a part of the old forest and lying adjacent to each other are called, is a common English holiday trip for people living in the cities of the midland counties, and thousands make it every year. The excursion is easily made from the town of Worksop, in Nottinghamshire, and a day is needed to make the circuit of thirty miles through the different estates and the remnants of the forest. Two or three days, however, can be well employed in the neighborhood of Worksop if the visitor is interested in gardens and in fine houses as well as in old trees. One may see in these two or three days Worksop Manor and park, lying close by the town—a fine park, now the property of the Duke of Newcastle, the house, however, much reduced by fire from its old estate. It was the home of the Earls of Shrewsbury, and stout Bess of Hardwick built the mansion or finished it, and ruled over its destinies, as she did in one way or another over all the great families of the county. Mary Queen of Scots was once a prisoner in this house. There are a few fine trees in the park, including a group of noble Oaks not far from the mansion. A little beyond Worksop Manor the high-road leads into the enclosure of the park of Welbeck Abbey, where the visitor will find the winners of two successive Derbys and the most successful breeding establishment in the history of the English turf.

Just beyond Welbeck is Clumber, the seat of the Duke of Newcastle. The house is low and badly placed, and dwarfed, moreover, by the ugly church just completed, which is placed too near the mansion, with whose architecture it does not harmonize. The handsome terrace joining the house with the lake is one of the most successful in England; and the view across the lake to the rolling park beyond is very fine. There are noble trees in the pleasure grounds and in the park, and the lake, with its margins lined with wild plants and stocked with wild fowl, is certainly a most wonderful imitation of nature. The view of the mansion from one of the drives where it crosses a narrow arm of the lake on an old arched stone bridge is deservedly famous. The house contains many fine pictures and other works of art. What will strike, perhaps, the American visitor to Clumber are the countless thousands of rabbits running about every part of the place, which seems completely undermined with their burrows. The park contains no herds of deer, which abound at Welbeck, and in Thoresby Park, which is just beyond Clumber, and from which it is separated by two pairs of gates.

Thoresby, the seat of Earl Manvers, by far the most beautiful of "the Dukeries," and one of the most interesting places in all England, has a noble new Elizabethan mansion, built on high ground, overlooking the large artificial lake, close by which the old house stood. The park is twelve miles round, and contains many interesting and exciting views and many noble trees. Not far from the house is a small-leaved Linden-tree not easily matched anywhere, and across the lake is an avenue a mile long of splendid old Chestnut-trees of immense size, forming a long vista which loses itself in the mysterious depths of Sherwood Forest beyond. In the shubberies near the house, although not very long planted, are the finest specimens of the Hemlock-tree of the high Sierra Nevada (*Tsuga Pattoniana*) which can be seen in Europe. The present Earl Manvers is a planter of trees, as the young plantations all over the estate bear witness; and at one point the drive leads through a real forest of Beech-trees, with tall, straight trunks, which a German forest-master would not be ashamed of. Deer wander through the park right up to the terrace-wall and to the gates of the courtyard, and from the house great flocks of sheep and herds of cattle can be seen feeding under the park trees, giving life and variety to the scene and adding much to its attractiveness.

Passing out of Thoresby Park gates the road leads directly into Sherwood Forest at the point where the view in our illustration was made. Then it stretches through

"Bilhagh" and "Bircklands," under the sturdy branches of the "Major Oak" and by some of its hardly less famous companions, and then, leaving the forest and skirting the park and woods of Welbeck, it returns to Worksop through rich farm-lands held by tenants of the Duke of Portland. Newsted Abbey, the home of Byron, is within easy driving distance of Worksop, and forty miles away in the other direction is Chatsworth, the seat of the Duke of Devonshire.

This short sketch is not meant as an account of Sherwood Forest or of "the Dukeries." They are described over and over again in books which treat of rural England, and in the pages of English journals of horticulture. Our object in alluding to them is to remind our readers that if they visit England they can see in the neighborhood of Worksop, better perhaps and more easily than anywhere else, what rural life means to English noblemen.

The great advance in horticulture during the last twenty or thirty years is due largely to the sustained and intelligent efforts of those specialists who have devoted themselves to the study and improvement of particular classes of plants. Such men, for obvious reasons, have been more numerous in Europe, particularly in England, than they have been in this country. We can point, however, to conspicuous instances of long continued horticultural experiments in America, and as wealth and leisure increases here they will probably become more frequent than they have been. Mr. Hunnewell, who relates in another column the conclusions he has reached from long years of patient cultivation of the Rhododendron, shows us what an individual interested in a particular class of plants can accomplish in increasing the stock of available knowledge relating to his favorites. Mr. Hunnewell has for nearly forty years been the most munificent patron of horticulture in America, and his gardens at Wellesley, in Massachusetts, are famous from one end of the land to the other. But unlike many another horticultural Mæcenas, he does not content himself with the mere lavishing of money in gardening, but practices the art himself, knowing his plants and all their requirements thoroughly, and devoting himself year after year, and often in the face of great disappointments, to the study of his favorite Rhododendrons and of the great collection of conifers for which his garden is also celebrated.

When the cultivation of Rhododendrons was first undertaken at Wellesley little was practically known of the proper methods of growing them in the United States, and nothing at all of the sorts suited to our climate. To give a full and fair test to all attainable varieties of these plants demanded rare steadiness of purpose, but Mr. Hunnewell's patient labors were renewed year after year with never flagging zeal and enthusiasm. When his first Rhododendrons were planted, it was believed by most Americans who knew anything whatever about them that any effort to cultivate them here in the open air would be hopelessly wasted. But forty years of experiment has proved that many of the very best varieties will grow in New England as readily as a Lilac or a Guelder Rose, if certain simple cultural conditions are supplied. That such men as Mr. Hunnewell, generous, public-spirited and patient in pursuit of knowledge, appear occasionally among us, is certainly the most hopeful sign that American horticulture is advancing to the broader and better fields we confidently predict for it.

The proposal of the Park Board of this city to remove the collection of animals in Central Park from their present quarters to a larger space of open meadow on the opposite side of the park has called forth a vigorous protest from the entire press of New York. The objections to this scheme are not based on the opinion that the ground now occupied by the menagerie is a suitable one, nor on the assumption that a good zoological garden is not altogether a worthy object to strive for, but on the conviction that the open spaces of the park are too valuable to be sacrificed to any exhibition of the sort, however desirable in itself. Our own belief is that this conservative view cannot be too strenuously insisted upon. It is these tranquil meadow surfaces which make the park efficient as a refreshment and a relief from the rigid lines of streets and buildings; and the paramount duty of all who have any influence in these matters is to guard against any possible encroachment upon these areas of greensward and their border of trees. These open meadows, of which there are now too few, and which were created at great expense, constitute the primary and essential value of the park, and to obliterate them is a practical confiscation of public property. It is encouraging to find that every attempt on the part of any special interest to occupy and possess these grassy openings gives occasion for the people and the press of the city to demonstrate how profound is their appreciation of the true function and the highest purpose of the park.

Native Shrubs of California.—III.

Garrya elliptica, Dougl. ("Bot. Reg.," *t.* 1686). From the figure given in the "Botanical Register" more than fifty years ago, taken from a specimen which had flowered in England, one would not infer that the species deserved mention among the really very ornamental shrubs of California. Perhaps it did not find in England a congenial climate. In its native localities among the Coast Mountains, growing, in clumps, from six to ten feet high, with its dark green, leathery, wavy-margined foliage, it is never unsightly; while at flowering time it appears very uniquely beautiful. The inflorescence, while ameutaceous, and therefore like that of Alders and Birches in kind, is of a much more showy character. The tassels, those of the male shrub being commonly eight or ten inches long, very slender, and of a pale green which harmonizes well with the dark hue of the foliage, are hung forth from two to four or five in a place, at the ends of all the branches and branchlets; and being of such length, some of them fall across lower branches and often hang in festoons, draping most gracefully and attractively the whole bush. The flowering occurs usually in early February, after the first week of mild, sunny spring weather; and the long light chains of pale olive green, naturally of only ten days' duration at best, are sure to be gathered from the bushes, almost before their full development, by afternoon strollers in quest of earliest wild flowers.

One or two other species of Garrya, found southward in the state, or in the mountains of the interior, are less ornamental; but by virtue of the strongly tonic property of their bark, they are well known to miners and mountaineers, who employ them as a remedy in ague and intermittent fevers. The bark of the Cornel or Dogwood of the Atlantic States has the same qualities; and there are botanical systematists who consider the Garrya and the Cornus as belonging to the same family, although they bear not the least external resemblance to each other. All the Garryas have, however, the same fine-grained, very hard wood as the Cornel. But for its uniquely beautiful appearance when in flower our *Garrya elliptica* deserves a conspicuous place in every shrubbery. Lindley described it as hardy in England; but it is doubtful whether it would endure well the dry cold of the New England winter.

Ribes tenuiflorum, Lindl. ("Bot. Reg.," *t.* 1274). I must speak first of the bibliography of this, our Californian Yellow Currant; for I have long perceived that all American writers of the present generation confuse it with the Missouri Currant (*R. aureum*). The two species are entirely distinct, as I have clearly seen ever since my earliest years in California. The last-named does not grow either in California or anywhere west of the Rocky Mountains. The former is found along the eastern bases of the Colorado mountains and for some distance eastward. The confusion of the two began with Pursh, who, in 1814, had both in mind when he described his *R. aureum*. According to Lindley, Pursh's dried specimens were of the far western shrub from the Columbia River-region, not then introduced into England, and his description was drawn up from living bushes of the true Missouri Currant, at that time already in cultivation there. Nuttall had in 1818 indicated that he considered it to be two varieties of the *R. aureum;* but Lindley in 1829 made clear the specific differences, and gave the name *R. tenuiflorum* to the Pacific coast species, reserving the name *R. aureum* for the one then best known, giving as his reason the fact that this had been the shrub from which Pursh had drawn up his specific character. Both species are figured in the "Botanical Register," *R. aureum*, at *t.* 125; but they are represented in flower only; and if these plates

exhibiting mere branches in leaf and flower had left nothing untold, botanists would have been excused for treating them as one species. The essential differences between them, apart from considerations of geographical distribution, reside in certain strong characteristics of the flowers and fruits. The sole recommendation of the old and true *R. aureum*, or Missouri Currant, is the delicious spicy fragrance of its flowers. *R. tenuiflorum*, all the way from middle California to the British boundary and across the country to Colorado, has flowers entirely scentless. Its berries are large, of a beautiful amber color, deepening to a paler than cherry-red in fullest maturity, and have an acidulous taste without aroma. Those of the real *R. aureum* are smaller, black, sweet and with a decided black currant flavor.

The Pacific species grows ordinarily to twice or thrice the size of the eastern, and its fruit is valued, even in the wild state, in those remote, still sparsely-settled and little cultivated parts of northern California where it abounds. It is probable that under cultivation it would rise to a place of some importance. But, as above intimated, it is entirely destitute of that one quality, the rich odor of the flowers, which has made its more easterly ally a universal favorite in spite of the worthlessness of its fruit.

University of California. *Edward L. Greene.*

The Woods in Spring.

WHEN the army of white-throats and Savannah sparrows, in their migrations, have flown farther northward, and the "chippies" have become more abundant; when a few "chebecs" and "towhees" are heard introducing themselves to the passers-by, just before the bobolinks and orioles arrive, it may be called the misty season in the woods. You can name no special date when it is at its height, for it comes from the buds so gradually and ends in the larger, coarser spray with such slowly measured growth; but while it lasts the view of the young foliage, lingering on the tangled network of twig and branch, like variously colored scraps of vapor, is, indeed, charming.

No system of color language can describe accurately the various shades of the early dresses of the trees. Many of the hues are softened and subdued, in contrast to the gaudy colors of autumn. Green, in its many tints, is from the first put on numerous species. How becoming are the Alders and the Birches in their fresh, new trimming! The leaves of the Oaks, Maples and Hickories, just unfolding from the buds and flecking the sky with the mellow stains of yellows, reds and browns, are especially attractive. The conditions and surroundings of the trees have much to do in painting the foliage before the chlorophyll has dyed it for its summer's work. The saplings and sprouts of the White Oak are decked with scraps of maroon velvet cut into the regular established patterns, while the leaves of older trees of the same species, on higher ground, are often the color of amber or of half-ripe lemons. The evenly plicated leaves of the Wild Cherry shine like bronze in the sun. Here and there the Large-Toothed Aspens have arrayed themselves in white silky-wool attire, and, as they rise like clouds in fleecy masses amid the early spring foliage of the hard-wood trees, they form very conspicuous objects in the forest.

How exquisitely tender and transparent is the new leaf of the American Basswood! I can hardly bear to look through it at the sun. When it is closely laid on paper, writing can easily be seen through. Viewed in the light it assumes a yellowish cast, and you not only see the slender forked veins, extended at regular intervals from the midrib, but hundreds of gossamer cross lines, like those of spiders' webs, which form the frame-work of the delicate structure. Its shape is beautiful, with sweeps and curves, and its edges are fringed with the finest teeth. What special wood fairy has been appointed to give it such elegant proportions and to cut all of the leaves of the *Tiliaceæ* into the peculiar oblique, heart-shaped pattern? The largest lobes at the bases are invariably placed toward the young shoots, and the leaves are arranged upon them so as to secure the greatest amount of light and air.

The Beeches answer to the call of the sun a few days later than the Basswoods. A copse yonder on the hill-side is just beginning to put out its broidery. Little mouse-ears of leaves, clothed with silken hairs, are unfolding from the brown, rusty scales and lengthened buds; yet, curiously enough, the leaves on the twigs of a few saplings that touch the boles of the larger trees are already more than half grown! Was it the partial shelter in which the buds were placed during the winter that caused them to gain such a start? The Beech-leaves are formed into the most elegant designs. How fresh and beautiful these premature ones appear against the smooth, ashen-gray bark of the old trunks. They are ovals, pointed and evenly scalloped. The straight prominent veins on the under surfaces, running out to the very tips of the salient teeth, are drawn as with a rule. The arrangement of these ribs, however, is inclined to vary. In some specimens these nerves are opposite along the basal half of the midrib, but become alternate toward the point. Some are alternate at the base, but become opposite half way up, while on other leaves the ribs are alternate or opposite throughout the entire length.

The Dogwoods, or Cornels, too, are putting out. There is a peculiar physiognomy about the leaves of the species, though it can hardly be described, which at once shows to the observing rambler their Cornus blood. All of them have entire margins and are oval-shaped and pointed.

Along the swampy shore of a pond, where on one side rises abruptly a rocky slope studded with tall, straight Chestnut-trunks, I have paused to note a small tree among the boulders which is not very common in the northern and middle New England woods. It is the flowering Dogwood, *Cornus florida*, a big brother to the dwarf Bunch-berry. With the exception of its humble relative it is the only species here that has its flowers in close heads. These heads are surrounded by four large snow-white, corolla-like, heart-shaped leaves that appear some time before the little greenish yellow flowers open, and, when viewed amidst the young foliage or against the gray background of boles, ledges and the dead leaves of the forest-floor, present a very striking appearance. It is a notable example of those kinds of plants that throw out their signal flags to the honey gathering insects. It knows the importance of showy advertisement. Were it not for these conspicuous flyers the early bees and moths would pass them by unnoticed, and thus, by the neglect of cross fertilization, render the seeds and fruit less healthy and vigorous. But how quickly the leaf builders work. Before May has ended many of the leaves have attained their full growth and spread themselves along the branchlets in huge green flakes and slanting pinnacles that swing in the breeze as if they delighted in their luxuriousness; every shrub and tree yields foliage after its kind. There are patterns of hearts, rounds, ovals, spattels, spears and shields. Some are smooth and polished, others hairy and crimpled, some with their edges entire or cut into hundreds of different pretty borders; each species of plant taking on the form, size and texture of leaf according to its "peculiar structure and organization, habits and requirements."

Boston, Mass. *Horace Lunt.*

The Peruvian or American Potato.

THIS most important and valuable of the edible *Solanaceæ* is very erroneously denominated "Irish" in our census reports. Virginia has a certain claim to be considered the mother of the White Potato, but the vegetable in its present improved state owes more to its Peruvian and Chilian parentage than its Virginian. Much is also due to changes produced in the tuber by different climates and soils, which are in themselves a curious and interesting study. That our present Potato is a development from one wild ancestor having several sub-varieties marked by differences in the size and color of the tubers and in their habits of growth, has been established by experiments of recent years in our own country by the developing of a pea-sized tuber to one of a pound in weight in seven summers. The existence of sub-varieties will be learned by growing wild tubers from California, Texas, Arizona, Mexico, Peru and Chili, as has already been done in this vicinity by Mr. Burnet Landreth. It was discovered that the plants were generally white blossomed; some were dark green; others light green; some quite prostrate in growth, and others more erect; and what is quite important, that the Colorado beetle would not eat them. The tubers were yellow-fleshed, white-fleshed, oval, round and obovate.

The Peruvian Potato was first discovered in a growing state by the Spanish invaders of Peru, who saw it under cultivation in the vicinity of Quito. Peru, at that time, had an ocean frontage of about 2,500 miles, and included Ecuador, Peru as it is now, and a large part of Chili. The government was a theocracy and the people were devoted to agriculture; bringing water by aqueducts where required, using irrigation and fertilizing with guano, which then covered the coast islands until they were white and mound shaped. The birds producing this fertilizer came at certain seasons by the million and were protected by the government. Never, perhaps, was the terrace system of mountain agriculture brought to a greater degree of perfection or more extensively used by any people; and the sides of the Cordilleras were zoned with vegetation, varying in character according to the climate given by different degrees of elevation above the sea level. On these leveled

terraces the Peruvians cultivated at different heights the fruits of the tropics, the Indian Corn and the "Papas," or Potato. How long the Papas had been redeemed from its wild state it is impossible now to determine; but it will answer our purpose to know that the tuber grows abundantly over a long range of the Pacific slope, and that it can be acclimated and perfected by a few years of cultivation. The character of the wild Peruvian Potato was tested in 1828 by a party of officers attached to the United States frigate "Brandywine," as recently related to me by Dr. W. S. W. Ruschenberger, U. S. N. The vessel was lying in the Port of Callao, and the party visited the island of San Lorenzo, about a mile and a half from the town, climbed its declivity to an elevation of about 1,200 feet, dug up a quantity of wild potatoes, carried them aboard ship and had them cooked. They were found bitter to the taste and much inferior to the tubers perfected by cultivation. These wild potatoes were larger than those usually found in North America, which are rarely beyond the size of marbles. They were from two to two and a quarter inches long, of a flattened ovoid form and indented with eyes. San Lorenzo is a barren island about seven miles long and three-fourths of a mile wide, and rises to an elevation of about 1,400 feet. The Potato plants were dwarfed resemblances of their cultivated and improved descendants. Would it not be well to obtain and grow some of the potatoes of this island for hybridization with our more delicate varieties?

The Peruvian Potato was first carried from its native soil to Spain by Hieronymus Cardan. Pedro de Cieca, of Leon, published at Antwerp in 1554 an account of his seventeen years of life and adventures in Peru, in which he states that the Potato was at that time grown in Italy. Carolus Clusius, of Aras, a physician and botanist, wrote in 1583 that the Potato was then extensively cultivated in Italy. The tuber was therefore under cultivation in southern Europe long before it reached England from Virginia, and was grown in Spain as early as the year 1550.

Early navigators found the Potato under cultivation by the Indians of Virginia, by whom it was called the "Openawk;" this was, no doubt, a North American variety disseminated by the Indian tribe. Mr. Thomas Hariot, a member of the colony sent out by Sir Walter Raleigh to Virginia in 1585, is credited with having taken the first potato over to England in 1586, in a vessel commanded by Sir Richard Grenville. Mr. Hariot was a man of education, and devoted his attention to making discoveries and observations regarding the country, its commodities, and the nature and manners of its inhabitants, which he described in a book published in 1588. The potatoes he took over were given to Sir Walter Raleigh, who had them planted in his estate near Cork, Ireland, probably in 1587. The Potato was not cultivated in the United States by foreign settlers directly from Virginia tubers, but from Irish and Spanish stock, produced respectively from Virginian and Peruvian Potatoes. A colony of Scotch-Irish who settled in Londonderry, New Hampshire, in 1719, brought over and planted the former, and the latter were introduced at a later period, under the name of "Bilboas." These were larger, and were known in Pennsylvania as "Spanish Potatoes"; they had a pungent taste and odor, and neither variety was at all popular. The Irish stock was a small, bright yellow kidney tuber, a decided improvement upon the wild variety, but less so than the best potato of to-day is an improvement upon it.

The botanical name of the Potato plant was first given it in 1596 by Professor Caspar Bauhin, in his "Prodromos Theatri Botanici," in which he called it the "*Solanum tuberosum esculentum.*" In England it bore the title of the "Virginian or American Potato." The first picture of the plant appeared in the "Herbal" of John Gerarde, surgeon, in 1597, under the title of "*Papus orbiculatus.*" Gerarde had a large botanic garden in Holborn, London, one of the first of the kind in Europe, in which he grew both white and sweet Potatoes. The latter appear also in his "Herbal" as the "*Sisarum Peruvianum*, or *Batata Hispanorum.*"

White potatoes were of slow introduction in the United States, partly from their taste, but more from an idea among working people that they were a slow poison, and that their daily use would prove fatal to the consumer in about five years. This erroneous notion was prevalent for a number of years, until it was finally broken up by the example of educated and wiser people. Had the potato of a hundred and fifty years ago been as inviting to the palate as is that of to-day, the poison idea would have had but little weight. There is a curious inconsistency in the human race with regard to the fear of poisonous articles. The potato, the tomato and the egg plant were all, in their early days, suspected of being poisonous, and this groundless idea was enough to keep many people from eating them; but why did not the same persons take alarm at the poison of whisky, tobacco, opium and other liquids and solids not necessary to health and unquestionably containing a poisonous excitant? At the very period when the prejudice against the potato was the most active in this city, the Grand Jury reported that the places where intoxicating drinks were sold were nearly equal to one-tenth of the houses in the town. The craving for excitants knows no fear of consequences; while, at the same time, the desire for food is discriminating and suspicious.—*From a paper read before the Pennsylvania Horticultural Society, by Robert P. Harris, M.D.*

Plant Note.

Cattleya Skinneri.

THE illustration on page 201 represents a large specimen of this beautiful Cattleya, from a photograph taken in its native country by the collector, when more than 800 flowers were fully expanded, with a number of buds to open. Owing to its enormous size, it was with considerable difficulty brought to the place where the picture was taken, and a number of flowers were unavoidably sacrificed. The plant was afterward packed and shipped to Europe, and perhaps it still occupies a place in one of the Orchid collections on the continent. A still larger plant of this species was imported by Mr. Sander some years ago from South America, where it had been grown in a tree near the dwelling-house of a laborer. This giant Orchid, which was figured in the *Gardeners' Chronicle* for March 8th, was so large that a special house was built for its reception. In its native country the finest and most vigorous plants are found upon rocks, in positions where very little moisture stands about them, and the blossoms are then much brighter in color and of greater substance than when the plants grow upon trees and are partly shaded. There is very little variation found in this species, the rarest form being pure white; and this form is hardly ever found in a wild state; the plants that are now under cultivation in our collections are nearly, if not all, obtained from the roofs of native huts and from gardens in Costa Rica, where they are grown exclusively for the flowers, used to adorn the churches during the "Semana Santa," or Easter week. Like the majority of Cattleyas, this species delights in an abundance of air while growing, and if placed in baskets so that the compost may be fully exposed to the air and be in no danger of becoming sour or stagnant, it will grow vigorously. This compost should consist of good fibrous peat with a small portion of sphagnum.

Summit, N. J. *A. Dimmock.*

Foreign Correspondence.

Berlin Letter.

AT the last meeting of the Society for the Advancement of Horticulture the exhibition of forced Roses attracted much attention. These were grown from cuttings made late in March last year. Plants of La France and Marie Baumann about two feet in height bore from twenty to thirty-six buds and flowers of extraordinary health and vigor and of greater solidity than is usually seen in grafted plants. These cuttings were from forced plants, and, as soon as rooted, they were planted out in the open air in April in a bed thoroughly enriched with well rotted manure and deeply spaded. During the summer frequent applications of liquid manure were given. In November they were potted and brought into a cold house, where they remained until February, when the forcing began. It is well to note that no pruning was done; not a twig that was grown during the summer had been removed. The bushes had a diameter of from two to two and a half feet, and the leaves and flowers were of the best quality.

Another feature of interest in this exhibition were the hybrids of *Saxifraga Stracheyi* and its allies, with pure white, rose colored and red flowers, those of one plant closely resembling Peach-blossoms, not only in size but in form and color. The plants had been placed in a rather dark position, in order to elongate the peduncles, which are normally short.

On page 90 of this volume of Garden and Forest I stated that plants of *Chamærops excelsa* were to be left out all winter in order to test their hardiness, and the result has been that they have passed through in good health. Perhaps, therefore, these Palms deserve the distinction of having survived a European winter in the open air in a higher latitude than any others. It is true that the last winter was mild, the lowest temperature being eight degrees Fahrenheit, and yet the fact is of the highest interest and invites farther experiment. To make such

experiments most valuable it would be necessary to test Palms which have been grown from seed from the most northern limits or from the highest elevation where the species is ever found.

The temperature in March was extremely high—eighteen degrees of Fahrenheit above the normal. One day the normal temperature of June 15th was attained, and, as a consequence of the excessive warmth, spring flowers were so ambitious and the development of the leaves of trees and shrubs so rapid that spring here resembled those of the high north. One was greatly reminded of the season at St. Petersburg, where the spring runs its entire course in a few days.

Amongst the shrubs the white and fragrant flowers of *Lonicera fragrantissima* are already open in the botanical garden, and near it are seen the rose colored flowers of *L. Standishii*. Near these two plants stands the lovely *L. Alberti* from Turkistan. When I ran over not long ago the species of Lonicera in the Royal Herbarium I discovered that this Honeysuckle had before been collected by Schlagintweit in the Himalaya, in whose herbarium it is preserved without a name, and now Dr. Koehne, who is elaborating a revision of Loniceras, finds that *L. Alberti* of Regel is a long known plant, *L. spinosa*, Jacq. *Corylopsis spicata*, S. & F., allied to the Witch Hazel, is another plant now flowering in the botanical garden, and very beautiful it is and well worth growing in any park or garden. Forsythias have become most popular here of late years, and there is hardly a cottage-garden in which there is not at least one of these shrubs covered now with its bright yellow flowers. It is specially adapted to our climate.

The strike of the under-gardeners was begun on the 1st of April, although it had been in preparation since last autumn. At that time the gardeners demanded of the nurserymen a change in their working hours, which was refused. This spring they sent a demand to the nurserymen that their working time in vegetable and plant nurseries should be eleven hours, while in tree nurseries and out-door garden work it should be ten hours, and that their minimum pay should be $6 a month with board and lodging, or $4.28 a week without board. Most of the nurserymen declared that those demands were not exorbitant, and yet they refused to subscribe to the terms, so the strike began. It seems, however, that at the last hour the nurserymen yielded the points in dispute. There are in and near Berlin some 500 nurserymen, who employ some 2,000 gardeners.

I should be greatly obliged if some of your western readers would collect for me some seeds of Erigonums. These plants are well suited for culture here, especially on rockeries, but they are found in few European gardens. Their inflorescences are of the highest morphological interest, and I should like to study their development, but to do it I need the living plants.

Berlin. *Udo Dammer.*

Cultural Department.

Hardy Rhododendrons.

IT has been suggested that the experience of an old grower and lover of Rhododendrons might prove of interest and possibly help to promote the cultivation of these beautiful shrubs, and I therefore send a few notes of a general character, based upon many years of labor and careful observation.

It must be admitted that the cultivation of the Rhododendron in this country has made comparatively slow progress, in spite of liberal prizes offered by our horticultural societies and the high appreciation in which the plant is held in England, where it is a prominent feature in the decoration of all the fine places and where those grand exhibitions under canvas excite so much interest and admiration every year. The explanation of this indifference is found to some extent in a general impression, in New England especially, that our winters are too severe, or that the Rhododendron is so difficult of cultivation that only a few can succeed with it, and then only at the cost of much labor and money. That there is some foundation for this belief cannot be denied, and it is true that the mild and moist atmosphere of England is better adapted to its special requirements than the extreme cold winters and the hot, dry summers of this country. It is true also that many of the very finest varieties can be grown there which are tender here. But, on the other hand, it is equally true that a sufficient number of very attractive hardy kinds remain to satisfy the most ambitious horticulturist, and these, under favorable circumstances, can be grown here without much more care than is given to ordinary garden shrubs.

Fig. 35.—Cattleya Skinneri.—See page 200.

It should be more generally known that the list of well tested hardy kinds has been largely increased of late years, thanks to some of the skillful hybridizers in England, who have raised new varieties for this country with special reference to their hardiness combined with splendid foliage and the most gorgeous flowers. Enterprising nurserymen on this side of the water have also accomplished much in this direction, and it is to be hoped they will be repaid for their trouble and expense. To show what progress has been made in the introduction of new and choice varieties, I can testify that it is not a great many years ago when but very few of the bright flowering varieties termed precariously hardy were to be seen here; and I remember hearing the statement made by one of our most intelligent horticulturists that not one of them could be considered perfectly reliable in our most severe New England winters. All doubt, however, on this point has been entirely removed at the present day, for we have numerous fine crimsons and scarlets, many of which have proved as hardy and reliable as the old favorite Everestianum.

In the cultivation of Rhododendrons, a mistake is frequently made in selecting for them the most sheltered southern exposure that can be found and one where the sun shines on them the whole day, under the impression that they are all extremely tender. In such a location the soil is likely to become very dry and parched in midsummer, and the result is that the plants suffer from drought, which, together with poor cultivation, in my judgment causes more injury than our most severe winters. As is well known, the Rhododendron requires a cool and moist soil, and it is sure to suffer the moment the roots become dry, though the injury may not be apparent to the casual observer at the moment. The latter part of the winter, however, tells the tale in the browned foliage and then the injury is often wrongly attributed to the cold weather. The bad effect of drought is also occasionally seen in the spring in dead flower buds which have never fully ripened. For many years I thought extreme cold weather was the cause, but with closer investigation I have concluded it is oftener owing to very dry weather, and I am confirmed in the opinion by the fact that this rarely occurs except after an unusually dry summer. This objection, however, of selecting a southern exposure for planting will not apply with the same force in cases where the place is a reclaimed meadow or has a soil which keeps moist even in very hot weather; but these are conditions not very often met with; and I would recommend as far as practicable that plantations be made on the northern slope of hills, or where they will be shaded during some portion of the day by belts of trees or buildings.

After what has been said in regard to the great importance of moisture in the cultivation of Rhododendrons, it follows as a matter of course that a careful and thorough preparation of the soil in making borders for plantations is a necessity. Two or three feet of loam may answer for ordinary shrubs, but twice that depth is better for Rhododendrons, especially when they attain considerable size. It is now generally understood that peat is not indispensable, still it is highly beneficial, and I would confidently advise its liberal use when easily obtained, as well as a good supply of leaf mould, which I believe to be equally desirable.

The hybrids of *R. Catawbiense*, which are the most hardy in constitution, and from which by crossing the finest crimson and scarlet varieties are produced, have been sent out from England during the last dozen or fifteen years in large quantities, and varying as they all do in respect to hardiness, it has been no easy matter to ascertain with certainty which could be depended upon in our severe and changeable climate. An inspection of the foliage is generally a very sure guide, but it is not conclusive, and many cases of so doubtful a character occur that it is necessary, before a positive decision is reached, that they should be left out for several winters in order to settle this question satisfactorily. There are, however, many of these new and charming varieties which have been so thoroughly tested that they can be confidently recommended for general cultivation in this part of the country. One of these which is a favorite with many is Lady Armstrong, a pale rose, spotted and showy, with good habit and foliage. Others are Scipio, Giganteum and Sherwoodianum—all rose colored—and Charles Bagley, cherry red, with extra fine foliage. Among the crimsons we have quite a number which are great acquisitions to the hardy list and must soon find their way into all collections. Mrs. Milner, a rich crimson, I have had out many years. Kettledrum has proved very satisfactory, and so has E. S. Rand, which has been somewhat lost sight of. H.W. Sargent is a grand crimson, with an immense truss, but it has proved a little disappointing in habit. Guido, crimson; James Bateman; Lady Clermont, rosy scarlet and very desirable; Caractacus, a rich purple-crimson, and Old Port, plum color, are all good. Alexander Dancer can be strongly recommended as of good habit and foliage, with a grand truss of bright rose flowers. Minnie, blush white, spotted with chocolate; Charles Dickens, very hardy, dark scarlet; John Waterer, a free blooming dark crimson; Mrs. Thomas Wain, pale rose, and Maximum Wellesianum, blush, changing to white, with fine foliage, can also be safely recommended.

I now come to some of the still more recent and choice English varieties, which for several years I treated as half-hardy, moving them into pits in the autumn, where they remained during the winter. This mode of treatment not proving an entire success, I have been testing many of them by leaving them out in the borders all winter, some for several years and others only during the past two years, with very encouraging results, though it will be remembered that both summers and winters of the past two years have been exceptionally favorable for Rhododendrons. Still the thermometer at Wellesley has been down to five degrees below zero once, and twice to zero this last winter. They are magnificent plants with flowers of great beauty, and my experience with them, though limited to a few years, has been so very promising that I think they can be recommended to any one disposed to give a little extra attention to favorite plants.

J. Marshall Brooks is a rich scarlet, with a bronze spot, distinct and beautiful; J. McIntosh, a rosy scarlet; F. D. Godman, crimson, fine foliage; Ralph Saunders, purplish crimson, large truss; Rosabel, pale rose; Lady Grey Egerton, silvery blush, splendid truss and foliage. C. S. Sargent is one of the finest crimsons, and with its Catawbiense foliage will doubtless stand any old-fashioned New England winter. The Queen has a fine shaped flower, blush changing to white. Mrs. Arthur Hunnewell is pink with primrose centre, very showy and promising. Mrs. John Clutten comes with the recommendation of being the best hardy white Rhododendron in cultivation; I have at times felt discouraged in regard to its success in this part of the country, but with some coaxing have finally succeeded in raising some fine, good sized plants. Other noteworthy varieties are Joseph Whitworth, dark purple lake, large blooms, beautiful foliage; Duchess of Edinburgh, crimson, with light centre; Duchess of Sutherland, white, with margin of rosy lilac; Duchess of Bedford, crimson, light centre; Marchioness of Lansdowne, pale rose, with intense black spot, very showy; Charles Napier, clear rose; Mrs. Shuttleworth, scarlet, much spotted, and a very free bloomer; Sigismund Rucker, magenta; William Austin, bright crimson, abundant bloomer; Meteor, fiery crimson; Sir Arthur Guinness, fine clear rose; Bacchus, crimson, large truss; Ne Plus Ultra, finely shaded lilac-purple, good foliage.

Here is a list of over twenty very beautiful varieties supposed by me for many years to be tender in this vicinity, but I now believe a large portion of them certainly will be found hardy and great acquisitions to any collection. They, however, must be well cared for, and if water is not abundant and easily applied, they must be thoroughly mulched with some suitable material, or they will surely suffer from our hot and dry summers. I use for this purpose large quantities of forest-leaves, which are effectual, and when decayed make excellent nutriment for the plants. The objection that they are not very neat is easily met by a good covering of Pine needles.

I will here add to what has already been said on the importance of selecting a location where the plants will be shaded from the mid-day sun, that it is a precaution particularly desirable with these very choice and distinct varieties for the reason that if the weather happens to be very hot at the moment they come into bloom, the length of time the brilliant flowers remain in perfection is shortened very materially.

Wellesley, Mass. *H. H. Hunnewell.*

Notes from the Harvard Botanic Garden.

Francisea eximia and F. latifolia.—Both these fine old Brazilian plants are now flowering freely in a stove temperature. The former is an evergreen shrub of bushy habit, with lanceolate leaves, dark green on the upper surface and paler underneath. The salver-shaped flowers are borne upon the tips of the young shoots, and measure almost two and a half inches across. They are of a rich purple color, with a white eye when first expanded, but afterward shade off to a beautiful lilac tint. It is certainly a handsome and most desirable plant when in full bloom. Specimens that are satisfactory as to form may be potted immediately after flowering, but those of ungainly appearance had better be pruned into shape and allowed time to break slightly first. Sharp sand, leaf-mould, peat and loam, in equal parts, the two latter being

fibrous and lumpy, will form the most satisfactory soil. They should be placed in a moist atmosphere after potting, and where a minimum temperature of sixty degrees is maintained. Syringe regularly, shade from prolonged bright sunshine, and water carefully until new growth appears freely. Water in abundance will be required during the period of growth, and the plants should then be placed as close to the glass as may be convenient. When the young shoots attain a length of about three inches pinch out the extreme tips, but do not continue this process beyond the latter part of September; and a month later remove the plants to quarters that are drier and from ten to fifteen degrees cooler. Full exposure to sunshine will now be beneficial; less water will suffice, though the roots should never be subjected to extreme dryness, and, as the flowers appear, syringing may be discontinued. Firm cuttings of the young wood, taken with a heel of an older branch, root freely in sandy soil, with strong bottom heat, moist atmosphere and shade. In general outline and in the character of its cultural requirements *F. latifolia* closely resembles *F. eximia*. The leaves, however, are obovate, while the smaller flowers are deliciously fragrant, and of a distinct blue

A Road in Sherwood Forest.—See page 197.

shade, with a prominent white eye, when they open, but in process of time the entire flower becomes pure white. It is a common thing to see at the same time blue, lilac and white flowers on one branch of the same plant.

Medinilla magnifica.—It would be difficult to find a more truly magnificent object than a well grown specimen of this plant in full bloom, and, being an evergreen, the massive foliage renders it strikingly ornamental at all seasons. It is a branching shrub of somewhat scandent habit, and attains a height of five or six feet. The stems, when young, are flattened, green and smooth, but become gradually cylindrical, rough and brown; and they are well furnished with leathery, obovate, glossy green leaves from twelve to fourteen inches long and about six inches broad. The whorled terminal panicles of bright pink flowers average about twelve inches in length, and they assume a drooping position which adds materially to their pleasing effect. Showy bracts of a delicate pink color, disposed in opposite pairs or whorls of four, also contribute largely to their beauty. The largest of these bracts —they often exceed five inches in length by four inches across —are at the top of the inflorescence (when it is in a drooping position), and the others diminish in size as they approach its extremity. The plant is tolerably tenacious of life, but special attention to its cultural requirements will be amply repaid. Repotting as soon after the flowering season as possible and abundance of heat and moisture, with shade from bright sunshine during the growing season, are the principal matters to receive attention. It thrives admirably in a mixture composed of two parts each of turfy loam and fibrous peat to one each of sand, leaf-mould and manure, the two latter being thoroughly decomposed. In the case of extra large specimens some rough charcoal may be added. A minimum temperature of sixty-five degrees should be maintained during the season of growth, and afterward gradually lowered about ten degrees. Plants that are continually kept in a high temperature flower about three months in advance of those that have been subjected to less heat after the growth has been completed; but their inflorescence is usually inferior, and eventually the plants become exhausted. It is due to the pressing demands on space in a botanic garden that the only specimen here is kept in a growing temperature throughout the year, and generally blooms early in March; under more rational treatment the flowering season would extend from the beginning of April till the latter end of May. It is, however, very accommodating in this matter, for by the steady maintenance of a maximum temperature of sixty degrees, after the growing period, the bloom may be retarded to almost any season of the year. It will thus be seen that a growing temperature is, in this instance, as requisite to the development of flowers as it is to the production of new branches; and, seeing that new growth makes its appearance soon after the flowers are shed, this is just what might be expected. It can be propagated by cuttings prepared from the growing points of young shoots.

Sparmannia Africana.—This handsome evergreen shrub is a native of the Cape of Good Hope, and attains a height of ten or twelve feet under cultivation. It is of branching habit, and the branches are furnished with cordate-acuminate, dentate, light green leaves, which measure from four to five inches in length, and from three to four inches in width. Sometimes the leaves are lobed toward the apex. The pretty white flowers are freely borne in umbels, on the young branches, during spring. The numerous stamens,

with red filaments and yellow anthers, form a showy mass in the centre of each flower, and a series of barren yellow filaments, arranged round the fertile stamens, also adds to their good appearance. The branches and leaves and exterior surface of the sepals are clothed with downy hairs. *S. Africana* gives perfect satisfaction in an ordinary greenhouse, the temperature of which never falls below thirty-five degrees. Full exposure to light is at all times requisite, and a free circulation of fresh air on favorable occasions is beneficial. Specimens of all sizes will derive considerable advantage from being plunged to the rim in the open garden during the summer months, and when dry weather prevails a syringing toward evening will add to their healthful appearance. Plants should be potted early in spring. The tips of the young shoots root readily in a propagating frame at a temperature of about sixty degrees.

Solanum jasminoides.—From a floricultural point of view this is perhaps the most useful and beautiful species of the genus to which it belongs. It is a native of South American countries, but succeeds satisfactorily in a green-house, the temperature of which never falls below forty degrees. Being of a climbing habit, it is seen to the greatest advantage when treated as a vine, and trained to walls, pillars or rafters. The younger branches then hang downward gracefully, and during winter and spring bear numerous racemose clusters of pretty white jasmine-like flowers, that are further adorned by conspicuous bunches of yellow stamens. It is a deciduous plant, the ovate-acuminate—sometimes cleft—leaves falling late in summer or early in autumn, and it grows most luxuriantly when planted in a prepared bed or border. When in active growth it requires plenty of water, but the quantity should be restricted during the season of rest, which continues from six to eight weeks after the leaves have dropped. The tips of firm young shoots make good cuttings, which root quickly in sand with the assistance of a little bottom-heat.

Cambridge, Mass. *M. Barker.*

Wild Flowers under Cultivation.

EXPERIMENTS in the cultivation of wild plants often give results at once surprising and gratifying. The common Loosestrife (*Steironema ciliatum*), for example, is a plant which in its wild state attracts but little attention, and which but few persons will even recognize. A year or two ago I lifted a clod of its roots and gave it a position in my garden on the north side of a picket-fence and in the partial shade of a tree. The last summer it formed a charming mass of neat, clean foliage, borne on many erect, wiry, symmetrically branching stems three or four feet high, a cord tied to the fence affording a slight support, and when studded over with its airy, delicate, golden-hued blossoms, but few plants in my garden excited more interest or were more admired. It is, too, a lasting bloomer, and retains the freshness of its verdure until cut down by the frost.

Another plant that has especially pleased me under domestication is *Spiræa Aruncus*, or Goat's Beard. A clump among the shrubs in my garden is a most effective feature, making a luxuriant growth of a peculiarly picturesque habit, and the flower panicles produced are of immense proportions, the whole plant having improved wonderfully with the slight care it has received. During the early period of their growth, or until they are a foot high or more, specimens may be readily removed from their native haunts to the garden, and, in a rich soil, will thrive from the start. Care must be taken to discriminate between the male and female plants, only the former producing the large, showy flower-panicles. During the period mentioned I have never failed to separate the sexes by the marked reddish tinge of the stem and leaves of the female plants—a point which seems to me an interesting and noteworthy distinction. The foliage, however, of the female plant is more lasting, retaining its freshness until the seeds ripen, while in the male plant it begins to fade or dies soon after the flowers wither.

The Blue Wild Indigo (*Baptisia australis*), ornamental in flower and foliage, is an abundant strong-growing species along the shore of the Ohio River within my field of observation. A few years ago I transferred a specimen, with its remarkably deep set, strong and bulky roots, to my grounds, setting it in an open situation in a compact sandy soil. It flowered and did well the first season, but the next year or two it was less thrifty and failed wholly to bloom. One autumn I loosened the earth about its roots to the depth of eight or ten inches and covered it with two or three inches of well rotted manure. In the early spring I again loosened the soil and at times gave it a thorough soaking, letting it take in as much as a pailful. That season it made a remarkably vigorous growth, and produced a number of strong racemes of beautiful flowers. These plants, in their natural state, grow in an alluvial or sandy soil, and are often submerged by a full river for days together, which also serves as a strong fertilizer. To attain the highest success in their cultivation I am persuaded these conditions must be largely imitated.

Every one is familiar with Jack-in-the-Pulpit, or the Indian Turnip, but there are but few, it is safe to say, who have any knowledge of its congener, the Green Dragon (*Arisæma dracontium*), a scarcely less interesting plant, less common, perhaps, and less conspicuous as it grows naturally, but by no means rare. It could well lay claim to the distinction of bearing one of the oddest or most grotesquely formed leaves (it has but one) among native American plants. A little imagination might see in it a dragon's foot and claws. Whether it was this that suggested it or the fiercely acrid juice of its root-stock, and that of its kind, the name given to the plant is singularly appropriate. A bulb or corm set in my garden half a dozen years ago grows uniformly a much larger leaf than I have ever seen it in its wild state, measuring last summer a little over a foot across, and with seventeen leaflets, instead of "seven to eleven," as given by the botanies. With its very odd leaf and remarkably long and slender orange colored spadix it well deserves a place in the wild garden as a curiosity. Its scarlet fruit cluster is no less brilliant than that of the Indian Turnip.

Another domesticated wild plant in my garden worthy to be mentioned here is the Goat's Rue (*Sephrosia Virginiana*). It is enough to say of it that it retains under its new conditions all of its natural attractions of showy flowers and pleasing foliage. Some have told me they have failed in their attempts to grow it. In its natural state here it grows its long slender roots in a dry slaty soil in a more or less sunny exposure. I have conformed somewhat to these conditions. These are a few of the experiments of a busy man who loves flowers with a few plants growing wild in this region. They are presented with the hope that others may be induced to make similar trials and share with him much pleasure and instruction.

Fairview, W. Va. *W. E. Hill.*

Hardy Plants for Cut Flowers.—I.

FLOWERS for home decoration are now in universal demand, and this is one of the uses to which hardy perennial plants are specially adapted, because their requirements are few and they can be successfully cultivated by any one who can command a plot of ground. Of the thousands of perennial plants in cultivation, many whose flowers are beautiful, fragrant and durable when cut can be found adapted to any American garden, whatever may be its situation. It is now established beyond question that a selection of plants for the open border can be made to yield flowers in variety and profusion for nine months in the year, or from March until December.

Among the earliest of hardy subjects, the bulbous section take first rank. Such harbingers of spring as Squills, Chionodoxas and Crocus cannot be considered useful for cutting and it is on the numerous family of Narcissus that we most rely for the first really useful cut flowers. When Easter occurs well on in the season, as in the past two years, Narcissuses are always plentiful in the open air with us and can be relied upon for an abundance of flowers when they have become well established, which is usually the second year after planting. The varieties of Narcissus are numerous and naturally perplexing to the beginner, who is chiefly interested to know which are a few of the best kinds that will produce the longest succession of bloom. Out of a large collection, Golden Spur, one of the newer kinds, is always the first to bloom, followed a day or two later by *N. princeps*, a noble kind, and then comes Sir Watkin, the Giant Welsh Chalice-flower "with foliage like leeks," as Mr. Burbidge once observed when showing me his fine collection in Trinity College Gardens, Dublin. *N. bicolor Horsfieldi* then follows, and is at once the most distinct and beautiful variety in cultivation. The Jonquils should be added for their fragrance, and lastly, the beautiful Poet's Narcissus and its varieties. Thus it will be seen that some half dozen kinds, lasting over as many weeks, are to be relied on as perfectly hardy and vigorous, and are sufficient to form the nucleus of a collection that may be added to as opportunity occurs. It should be remarked that Narcissuses succeed well in shady places under trees, and may be used with charming effect for naturalizing among grass, many an English meadow being at the present time literally a garden of Daffodils. American cultivators need not trouble themselves about the necessity of lifting the bulbs annually after they have flowered, although this is practiced and preached

by some of the best English growers. We have always found that the greater extremes of drought and solar heat experienced here at the resting period of the bulbs will be found sufficient for ripening them, and that lifting them, besides the labor incurred, only produces artificial conditions which are unnecessary and too often detrimental.

Passaic, N. J. *E. O. Orpet.*

Endive.

THIS is an excellent winter salad, resembling the Dandelion in habit of growth, and quickly grown from seed, which should be planted about June 15th, and for a succession at intervals until August 1st. Hot weather is unfavorable for bleaching the plant, and cool nights and days up to November are most favorable. The Green Curled gives the best satisfaction. The Moss Curled is too tender; the Batavian too coarse. Plant either in rows to be thinned, or in a bed for transplanting. It bears transplanting well, but will grow where sown if plants are thinned to one foot apart each way. It is a great feeder, and well repays good care. When about ten inches across the leaves should be gathered about the centre in an upright position and tied with cotton cord wound three or four times about the plant.

There are other methods of bleaching, but none so quick, sure and satisfactory as tying the plants as recommended here, and I have discarded all others. The bleaching is completed in ten days or three weeks, as the weather is warm or cold. The plants should then be lifted with a ball of earth and brought into a light, cold cellar in fall, and set on the bottom in sand, where they can be kept until New Year's or until wanted for use. The white, crisp, slightly brittle leaves are pleasant to the eye and the palate.

Endive is a plant for the home garden, where it can be grown as a second crop when transplanted after Peas, Beans or other early vegetables. It should have sunlight for good development, as it makes a small and infirm growth in shade.

West Springfield, Mass. *W. H. Bull.*

Where to Plant Tender Trees.—A beautiful and thrifty Deodar Cedar, growing on a rocky, elevated site, suggests the thought that many partly tender trees might be grown if planted in situations where strong or late growths would not be made. The tree above referred to has made little growth each year, but this was sturdy and well ripened. It did not appear to have suffered at all in any of the severe winters through which it has passed. Many trees of doubtful hardiness would thrive under the same treatment. A few years ago I saw a fine specimen of *Magnolia grandiflora* growing on the hills of Roxborough, the coldest and highest part of Philadelphia. There was no protection save that of a dwelling, which was on the north side of it. It is well known that Peach and Apricot-trees growing in hilly places are rarely killed back in winter, as many are in rich, low ground.

Germantown, Pa. *Joseph Meehan.*

Hybrid Perpetual Roses.—If I were asked to name twenty of the best hardy Roses for out-door planting my list would be the following: Jean Liabaud, Paul Neyron, Mrs. John Laing, Ella Gordon, General Jacqueminot, General Washington, Alfred Colomb, Compte de Paris, Beauty of Waltham, Gloire de Margottin, John Hopper, Madame Charles Wood, Marie Baumann, Madame Masson, Madame Joseph Desbois, Queen of Autumn, Ulrich Brunner, Jules Margottin, Lady Helen Stuart and Eugene Furst.

These are all plants of strong constitution and produce magnificent blooms. The collection contains all the range of colors found in the Hybrid Perpetual class, from the light flesh tint of Madame Joseph Desbois to the velvety crimson of Jean Liabaud.

Richmond, Ind. *E. G. Hill.*

Triteleia uniflora.—This charming little bulbous plant is a native of Buenos Ayres, but it is quite hardy in the New England States, where its pretty star-like flowers are freely produced late in spring. They are borne singly on slender stalks, well above the somewhat drooping linear-acuminate leaves, which measure about one-eighth of an inch in width and from five to seven inches in length. The flowers are about an inch in diameter and of a delicate lilac color when they expand, fading with age to pure white on the upper surface. For a cool house it is a very effective pot plant during winter and early spring, and with a little extra care it may be induced to flower from the latter part of fall onward. In pot culture about a dozen bulbs should be planted—in a six-inch pot, using rich sandy soil—in September, and placed in a shaded and unheated frame, where, with attention to watering, the free admission of air on favorable days and protection from severe frost, they may remain until about two weeks before they are wanted to bloom. On removal to a sunny greenhouse, which affords sufficient artificial heat to exclude frost, the flowers will speedily develop. By attention to the offsets, which are freely produced every year, the stock of bulbs may be rapidly increased. They should be planted in the garden and allowed to attain full size before being used for pot culture.

Cambridge, Mass. *B.*

Recent Publications.

The Forests of North America.—II.

Die Waldungen von Nordamerika, ihre Holzarten, deren Anbaufähigkeit und forstlicher Werth fur Europa im Allgemeinen und Deutschland insbesonders. Von Dr. Heinrich Mayr. M. Rieger, München, 1890 (New York, Steiger & Co., 25 Park Place).

It is in the description of individual species and their products that Dr. Mayr's learning and conscientiousness most strikingly appear. For instance, his words about the Douglas Spruce (*Pseudotsuga taxifolia*), just now the most interesting of our trees to foreign foresters, fill more than twenty pages. Its aspect as a feature in our western forests and the methods employed in cutting it and transporting the wood are described in the chapter devoted to these forests. Then, in the section where each species is separately taken up, he describes its botanical characteristics and mode of development; its behavior under different conditions of climate, exposure and soil is carefully noted and illustrated by comparative tables of figures; the anatomical characteristics of the wood are exhaustively discussed and tables are given comparing it with the wood of the European Fir, Spruce and Larch; and its parasitical enemies and their action are considered, the adaptability of the tree to German forest-needs being of course borne in mind throughout. And then, in the chapter where the fitness of our trees to European conditions is especially discussed, he comes back again to the Douglasia (as it is called in Germany), and defines the stations which should suit it best and the value it will probably have. "It is to be expected," he says, "that the Douglasia, in so far as the excellence of its wood is concerned, will become the 'Larch of the level and low lands.'" When its wood is richest in substance and heaviest, it comes near to that of the European Larch; when it is lightest it stands on an equality with the best and heaviest Fir, Spruce and Pine-wood. "As the value of wood for fuel and to a certain degree its strength run parallel with its specific weight, the wood of the Douglasia may be called superior to that of our native conifers (the Larch excepted) in these qualities." Specific weight, he adds, is less decisive with regard to durability, but from the other factors which indicate this quality he concludes that "in this respect likewise the Douglas Spruce stands on an equality with the Larch." It is interesting to note that on comparing the wood of this tree as supplied by a specimen grown near Hamburg, in Germany, which was cut in 1882 at the age of fifty-two years, having remained remarkably low in a fully exposed situation, with the wood of a three-hundred-year-old specimen from Oregon, he found the former heavier and firmer in substance. The very best European stations for the tree he decides to be the north-west coast of France, and then Belgium, Holland and southern England, while neighboring districts, like Ireland, Scotland, and those portions of Germany which are directly influenced by the North Sea and the western Baltic, should prove almost as good, and its range may be extended, as far as climate is concerned, throughout the whole of Germany except its highest mountain regions. But he is careful to note that for each given district seeds should be imported from the proper American region, those trees grown from seed collected in Montana being proof against frost but slow-growing, while those from Oregon and Washington are quick-growing, but susceptible to spring and autumn frosts. Seeds from Colorado, he adds, which are recommended by dealers as giving frost-proof trees for our Eastern States, are not adapted to German use. "The plants are hardy, it is true, but very slow-growing indeed."

Dr. Mayr is careful to point out that the question whether an exotic tree can be grown in a given part of Europe is by no means the same as the question whether it will there serve the purpose of the economic planter. It does not fall within his province to discuss the value of such trees for park or street planting, or as objects of beauty or interest in ornamental grounds. He concentrates his attention upon their ascertained or possible serviceableness in the economic forest,

where, of course, they will be expected not merely to exist or to become objects of beauty, but to support forest-conditions, to grow at least as rapidly as indigenous species, and to produce wood which is at least equal to that which these species supply. Of course, the subject is a complicated one, and with most of our trees much actual experimenting must still be done before their worth to European foresters can be estimated. But whatever can be done by theorizing, based on a wide and careful observation of facts in this country and a thorough acquaintance with European conditions, seems to have been done in this volume. The danger of generalizing from too brief experiments is made clear, and is emphasized by reference to many European species which, for a time, seem to do thoroughly well in America, but before they reach maturity fail and die. The same thing, says Dr. Mayr, may be expected in many cases in Europe—a quicker growth to begin with than is shown by related native trees and then a sudden and hopeless failure. The reasons for this phenomenon are of course referred to, but at a length too great to permit quotation now. It is especially interesting to follow the author through the chapters where he discusses the different elements which are comprised under the general term location. Relative degrees of cold constitute of course only one element, and the significance of this one is modified by the character of the others, as by the greater dryness or moisture of the atmosphere or of the soil, or a greater or smaller degree of evaporation in the plants themselves as affected by particular situations. "Nine-tenths," Dr. Mayr explains, "of all cases in which injury through frost in winter is affirmed, belong in the category of injury from drought, the consequence of a hindered or diminished water-supply brought about by frost. In this way, perhaps, may be explained the apparent paradox that many species which are known as 'hardy' in a notoriously cold climate pass for 'tender' in a notoriously mild one. Probably the plants stood in the first locality in a moister atmosphere or were better protected against evaporation, while the susceptible plants in the warmer locality had to fight against dryness and frost. It is to be expected that all species which come from the warm coast-zone, delight in swampy stations and live associated in large forest-masses will be particularly susceptible to a combination of frost and dryness. At the head of the North American species which come thus in question stand the conifers of the Pacific Coast west of the Cascade Mountains. In order to cultivate these in Europe without loss through frost it seems as though only the coasts, the interior of large forests, damp river and mountain valleys, or even a damper subsoil than they require at home, will be found available. The Lawson's Cypress, the Douglas Spruce, the Giant Hemlock, the Sitka Spruce and the Nutka Cypress are entirely hardy under these conditions; but if they are lacking, then even the Sitka Spruce fails, which, in its own home, on the shore of Alaska, stretches almost to the glaciers. Each plant, indeed, possesses a certain adaptability to changed conditions with regard to moisture, which may be increased or diminished by the dampness of the air and by the dampness of the soil, each by itself or both working together. The plant reacts notably against this combination in varying ways. Researches upon this point are not known to me. It is true that I now lack the literature to search with regard to it, and the contributions which I shall bring to the support of the statement rest, therefore, on my few personal observations. But if a literature on this subject does indeed exist, it cannot be very large, for the moisture of the air as a weighty factor in plant life has as yet not been sufficiently recognized." We cannot follow Dr. Mayr into the analysis which he then gives; but it seems worth while to call attention to the words last quoted as indicating a profitable field for other students.

Interesting, too, are his notes on the dangers which American trees will probably run in Europe from animal and vegetable enemies. He doubts whether they will be freer from such dangers than native plants. Indeed, he notes a number of probable special sources of danger, from the love of men to break off vital bits of new and interesting specimens, to the delight which, for some unexplained reason, all animals seem to find in exotic kinds of food. Again, epidemic diseases are more apt to afflict trees when many of a given kind are massed together (as is usual in economic planting) than when they are mixed with other species in the primeval forest.

But it would be an almost endless task to pick out all the most interesting and instructive passages in this book. We do not profess even to have called attention to some of those which, above all others, merited notice. To accomplish this one would have to read the volume more than once, and carefully weigh the relative significance of all its parts. Desiring to bring it as quickly as possible to the notice of our readers, we have simply chosen passages here and there for their illustrative value as showing the field it covers. Meanwhile we must conclude with a brief mention of the scheme for the use of our trees in Germany, which is outlined in Section XI.

Repeated stress is laid on the fact that little can be settled with regard to the economic value of our trees until they are tested in the forest itself, where, naturally, they often do better than in isolation. Dr. Mayr recommends, therefore, that small colonies of a given species shall be formed in forests which already exist, and all due measures taken for their protection and for observing their development. Then he mentions many American trees which are well worth using or testing, explaining his special reasons in each case. And then he fixes the limits of five distinct zones into which German lands may be divided according to general climatic conditions, and gives from one to three lists of plants for each of them. The first list contains those trees which have already been thoroughly tested, the economic value of which is established, and which therefore should be added to the small list of species now used by the forester, and planted in large masses. In the second list he places trees which are evidently valuable, which give good promise of adaptability to German conditions, and which it is, therefore, worth while to test in an extensive way; and the third indicates less valuable species which likewise have not yet been thoroughly tested. For example, the first zone he defines includes "the warmest, lowest regions of Germany, the valleys of the Rhine, the lower Main and the Neckar, with a medium yearly temperature above nine degrees Centigrade and a medium temperature during the period of most rapid growth of over seventeen degrees, where the Oaks do best, the Chestnut regularly ripens its fruit, and the cultivation of the Vine, of Tobacco and of Maize is possible." For this region he indicates, in Class I., the Black Walnut, the Shell-bark, the Pig-nut and the Mockernut Hickories, and the Sugar Maple; in Class II., the Black and the Yellow Birch, the Red Cedar, Lawson's Cypress and the Douglas Spruce; and in Class III., the Black Cherry, the Catalpa, the Occidental Plane, the American Elm, the Locust, and three Poplars, *P. balsamifera*, *P. monilifera* and *P. trichocarpa*. It may be noted that as a shrub which may cover the forest-soil and yield a valuable by-product in its fruit, Dr. Mayr recommends *Vaccinium macrocarpum*, from its fitness for ground upon which wood-production, even if possible, is, at all events, of minor importance.

Correspondence.

Botanical Names.

To the Editor of Garden and Forest:

Sir.—I often hear the remark: "If it were not for the hard names of the plants, how I would like to study botany, but I know I never could remember them." This too prevalent idea with the young is largely due to the "wits" who hold up botany and kindred sciences to ridicule by selecting some of the most difficult and uncouth names and making them the text for so-called humorous paragraphs in the daily papers. These articles are funny, no doubt, or they would scarcely find a place in our great dailies, and yet the more witty their raillery the more damaging the influence.

But occasionally we see an article, apparently written in all seriousness, to deplore the use of scientific names. As a case in point, I quote from a newspaper article: "True, my reading is mostly in history and literature, but that is not because of my indifference to science, which I regard as the highest of all truth, but because of the horrible jargon in which science is concealed rather than revealed. A rose by any other name may smell as sweet, but it does not sound as well when called an *Anastatica hierochuntina*. . . . I went to a flower show a short time since and saw the common Smilax labeled *Myrsiphyllum asparagoides*, and a Primrose marked *Primula Sinensis fimbriata*, and I thought of Wordsworth's

> 'A Primrose by the river's brim,
> A Primrose only was to him,'

and how his soul would have expanded if he had only known that other name. Now I confess this is all Greek to me, and I want to know if it is a help or a hindrance to the acquisition of knowledge. To myself I feel that it has been a hindrance, and it seems like a relic of the middle ages, when all important works were written in Latin for the benefit of the few who were Latin scholars."

It is not the science itself to which the correspondent objects, but the hard names which have deterred him from study. But really the names are not as formidable as represented. They help instead of hinder the study of science.

True, the botanical names are in Latin or have Latin terminations, this being the common language of all natural science the world over, so that a plant may be known by the same name in every tongue. If each nation had a nomenclature of its own, and a poor little plant had as many names as there are languages in the world, then there might be some reason in scolding about the nomenclature. The case is worse than this with common names, however, for each language has several of them for the same plant and many of these are misleading.

The correspondent cites for an example of a hard name *Anastatica hierochuntina*. The common name of this plant is "Rose of Jericho," which has misled him into thinking it a Rose or something like one. Now a little knowledge of botanical nomenclature would have shown him that this plant was a long way from the Rose family, and he would have known that the common name of all true Roses is Rosa. It certainly is more simple, more systematic, more easy to remember, if a single name—like Rosa—is used for all plants in one genus, with distinguishing specific additions for the separate species, than it is to have a name for each species which gives no hint of a plant's relationship to other plants. The name of the genus is like the family name or surname of an individual—as Davis or Smith—and the name of the species corresponds to the Christian name—as John or Jane. If one wished to study the ethnology of any race, would he consider it necessary to learn the names of the individuals before he learned the characteristics of the nation? Or would he make a plea that the names were so hard that it prevented him from gaining a knowledge of the people?

Any person who has a natural love of plants can become familiar with the botany of his neighborhood in one season. If not more than a hundred plants were well examined it would give a good general idea of our flowering plants, or if a person will patiently study even twenty well chosen examples he will thereafter have no difficulty in determining the species around him. The system of botany is so perfect that the study of one plant gives us a knowledge of the whole order or family to which it belongs.

Now if we look more closely at the dreadful botanical names, we find that when the genus was known to the Greeks and Romans, the old classical name is commonly retained. For instance, the genus Aster (of which we have so many wild species in the United States) is from the Greek word meaning a star. These little Star-flowers are everywhere on our roadsides, and in the woods and swamps, lighting up and making our waste places gay with their pretty white, or blue, or purple, or pink starry flowers. The specific name of these various Asters is often given to denote some character of the plant, so that the name is a clue to the species. Thus *Aster grandiflorus* means one with flowers large and showy; *A. acuminatus*, one with leaves oblong and sharp-pointed; *A. longifolius*, one with leaves long and linear. Would a common name for each species of Aster be an improvement upon this?

Some difficult names have been given to plants in honor of individuals; for instance, *Eschscholtzia Californica*, named for the discoverer, Eschscholtz, who found it in California, as the specific name indicates. Kosteletzskya, named for the Bohemian botanist, Kosteletzsky, is another hard one; but these names are more difficult to write than to pronounce. Hundreds of other persons to whom genera and species have been dedicated have not been so unfortunate in their names, as, for example, the botanist Magnol, whose name lives forever in the beautiful genus Magnolia. Claytonia is named for Clayton, an early botanist in Virginia; and Jeffersonia for the President who sent the first exploring expedition over the Rocky Mountains. Other genera are named from some property of the plant, or appearance of the leaves or flowers or stem. For example, the genus Hepatica is named from the shape of the leaf, which resembles that of the liver; Sanguinaria from the blood-like color of the juice of the plant. The specific name, when it does not indicate where the plant comes from—like Japonica, from Japan—is most generally truly descriptive of some characteristic of the plant.

All this elementary talk is of course for beginners, and it means that while scientific nomenclature might be greatly improved, really it is much better, simpler and easier to learn than the wits would have young people and ignorant people believe. It will be found, too, that scientific nomenclature is necessary even as a basis of common names, and gives the only key to the identification of plants by common names. And last of all, it will be found that good botanists—those familiar with scientific names—know the most about the common names.

Vineland, N. J. *Mary Treat.*

Destruction of Wild Plants by Roadsides.

To the Editor of Garden and Forest:

Sir.—A spasmodic attack of clearing up roadsides to which rural districts are frequently subject, has of late swept away several of those groups of Nature's planting upon which the eye lingers restfully when they are permitted to remain along county roads. One of these, where the pedestrian could pause among the shadows and note the variety of foliage, must have dated back many years, for its principal feature was a self-planted Apple-tree, the branches of which reached across the fence and drooped to meet a fringe of Hazel-bushes bordering the outer side of the footpath. Other shrubs gathered about these, one an Elder of large proportions, and a beautiful object when covered with its creamy white flowers or dark purple fruit. Many vines added their grace in fitting places, making altogether a pretty arbor, beneath which Ferns and Podophyllum found needed shade. All this and much more might have been urged in favor of this mass of growth, while on the other hand complaint was made, not without cause, that it was cumbering the pathway to the annoyance of passers-by. A judicious trimming, however, of the under branches and a removal annually of dead Blackberry-canes, would have obviated all difficulty in walking and saved it from wholesale destruction. Now the offending side of the tree having been cut away, and the shrubs trimmed off or grubbed out, there is little left above ground that bears promise of verdure in the near future; not at least until Nature shall have recovered her wounds and restored the loss from mutilation. Neither is there cause for hope that the tender plants now hidden beneath the soil will long survive unsheltered the extreme droughts to which the summers here are subject.

Another place of unusual interest to a lover of Nature was a small piece of marsh-land noted for the variety and brilliancy of its wild flowers, the great number of birds that dwelt among the Sedges and Willows, and also as the only spot in the neighborhood where *Cypripedium spectabile* might be found.

The land thus occupied, being destined to serve agricultural uses, is to be drained, and the occupant's first step was to burn it over, after which grub-hoe and axe were plied at the root of every tree and shrub. A strip of young timber on the higher land next the road, though of little use when cut, even for fuel, but of great value for shade and an attraction to birds, was included in the general uprooting, and many a choice wild flower will die out, lacking the protection and nourishment its leaves afforded.

It is to be regretted that persons who have highways in charge do not recognize the advantages to be derived from verdure in place of parched and barren roadsides.

The dry seasons and sweeping winds are a menace to the farmer, which he is constantly deploring, yet few land-owners spare any standing trees or protect those that spring up in waste places.

Klinger Lake, Mich. *Dorcas E. Collins.*

Fuchsia triphylla.

To the Editor of Garden and Forest:

Sir.—In a late number of Garden and Forest, in a paragraph referring to Fuchsias, I find the statement made by a writer in the *Revue de l'Horticulture Belge* that *Fuchsia triphylla*, a native of San Domingo, was rediscovered in 1884.

Permit me to say, as a matter of historical accuracy, that it was rediscovered on that island by myself in the early spring of 1873. I disposed of it to Mr. Isaac Buchanan in the autumn of the same year, and later on he disposed of it to another florist, who in turn disposed of it (as I am informed) to one of the large florists in the neighborhood of London.

New York. *Thos. Hogg.*

Notes.

Miss A. M. Vail, of this city, has been elected associate editor of the *Bulletin* of the Torrey Botanical Club.

The *Pacific Rural Press*, in its issue of the 12th of April, has an admirable portrait of the late Dr. C. C. Parry.

The perennial Candytuft is a plant which should be in every spring garden. Its leaves keep green all winter and it is already covered with snow-white flowers which endure for several weeks.

At a late meeting of the Royal Agricultural Society at Georgetown, Demerara, Mr. Rodway explained how ripe bananas could be dried so that they would keep in a condition of freshness long enough to be carried to England or America. The fruit was said to retain its flavor unimpaired for a long time.

The death is announced at Lucerne, in his seventieth year, of M. D. Bulan, one of the most successful and most generally employed landscape gardeners of France in recent times. His principal work was the Pærk of the Tête d'Or at Lyons, where he changed a great unhealthy marsh into one of the finest pleasure grounds of Europe.

The Massachusetts Horticultural Society has obtained the consent of the Boston city authorities to erect on the Common a mammoth tent for a horticultural exhibition to be held during the sessions of the Society of American Florists at their annual meeting in August next. It is expected that the exhibition will be one of notable interest.

A correspondent of the *Tribune* from Lakewood, New Jersey, states that more than 200 packages of Epigæa and Pyxidanthera are sent every day from that station by express and mail to distant friends by the sojourners there. Hundreds of the guests at the hotels, it is asserted, make it their daily labor to gather these beautiful little plants. There seems to be an unlimited supply of both species, but they will be practically exterminated from this region if this thoughtless devastation is carried on a few years longer.

In the "Sixth Annual Report of the Commissioners of the State Reservation at Niagara" the account of their work is carried down to the end of September, 1889. The number of visitors to the Falls is estimated at half a million annually, as many as 5,000 coming sometimes during a single day. The building of good roads in certain parts of the Reservation is the chief improvement now proposed. A map of the Reservation and its neighborhood is given with the report, and a geological appendix prepared by Mr. G. K. Gilbert, which tells the history of the Niagara River.

In our own country neighborhoods an effort might well be made to follow an example set in France, as recently noted in the *American Agriculturist*. In many French communes boards are set up bearing the following instructions: "Hedgehog: Lives upon mice, snails and wire-worms, animals injurious to agriculture. Don't kill a hedgehog. Toad: Helps agriculture; destroys twenty to thirty insects hourly. Don't kill a toad. Cockchafer and its larvæ: Deadly enemies to farmers; lays 70 to 100 eggs. Kill the cockchafer. Birds: Each department of France loses yearly many millions of francs through the injury done by insects. Don't kill the birds."

Two weeks ago we published an article by Mr. T. L. Mead, explaining how the various Palms in his collection at Oviedo, Florida, had endured the freezing weather of early March. Mr. Mead adds the following note in reference to the Ferns which were then growing in the open air: Older plants of *Cibotium Barometz* and *Blechnum Brasiliense* and young ones of *Lomaria ciliata* lost all their leaves, but new fronds are already beginning to push. The Maiden-hair Ferns, *Adiantum cuneatum* and *A. Wiegandii*, were hardly touched, and a quite extensive assortment of greenhouse Ferns bordering a small pool of water suffered less than many native species, Osmundas, etc., growing close by them.

Last year the Maple was chosen as the "State-tree" of New York by a vote of those participating in Arbor Day exercises, and it is suggested that this year a "State-flower" shall be selected in the same way. The student in the common schools of this state who presents the best essay, not exceeding 400 words in length, on the most profitable manner of observing Arbor Day, will receive a gold medal given by Mr. William A. Wadsworth, of Geneseo; and prizes of $100 and $50 will be awarded for the best kept district-school grounds in the state. Superintendent Draper announces, furthermore, that due mention in his report for 1891 will be made of the common-school student who, before the first of October next, shall transmit to his office the best collection of bark, wood sections, leaves and fruit of the "State-tree."

The comparative test between the heating power of steam and hot water, which was carried on a year ago at the Massachusetts Agricultural College, and which was reported in this Journal at the time (vol. ii, p. 186), has been repeated this year, and according to the last bulletin from that experiment station, with similar results. The record for the hot water boiler was in brief as follows: Total coal consumed from December 1st, 1889, to March 18th, 1890, 6,598 pounds; average daily temperature for the time, 49.74 degrees. The record of the steam boiler was: Total coal consumed from December 1st, 1889, to March 18th, 1890, 9,784 pounds; average daily temperature for the time, 48.39 degrees. That is, the steam boiler, with nearly fifty per cent. more coal, gave an average temperature more than a degree lower for three months and a half.

Two gentlemen, one of whom is Senator Evarts, recently joined in building a charming stone bridge for the benefit of their fellow-citizens in Cornish, New Hampshire. "Such an act," says the Boston *Herald* very justly, "is not a great affair, but it is one of the many ways in which our New England towns may be put on a par with the villages in old England, where the bridges, built across the different streams, are often the most picturesque attractions in the landscape, and give it a distinction that could be gained in no other way. Next to a good road in a country village is the finely arched stone bridge that spans some tiny stream, and wherever you find the good road and the picturesque bridge people of refinement and education are apt to locate their homes. Though a small thing in itself, it may be believed that no single investment can be made in many of our New England villages to yield richer returns than the tasteful bridges which are constructed over its waterways. Here is an unoccupied field where men of wealth can show their taste and give distinction to their native towns, and be sure to have their names handed down to posterity in grateful remembrance."

Experiments conducted by Professor Goff at the Wisconsin Station last year indicate that a solution of carbonate of copper is a certain remedy for the Apple-scab. The solution is composed of one ounce of carbonate of copper dissolved in one quart of aqua-ammonia (strength twenty-two Baume), diluted with 100 quarts of water. One and a half gallons of the diluted solution are sufficient to thoroughly spray a tree of medium size, and two gallons for one of large size. It follows, therefore, that four ounces of carbonate of copper and one gallon of ammonia will make 100 gallons of the diluted solution, which is sufficient to spray fifty large or about seventy-five medium trees once. The ammonia should be kept tightly corked with a rubber stopper. To this the precipitated carbonate of copper should be added at the rate of one ounce to one quart of ammonia, in which it dissolves, forming a very clear, deep blue liquid. When ready to commence the application, add this solution to the water used for spraying at the rate of one quart to twenty-five gallons of water. The bottle containing the solution should be kept tightly corked. Three or four applications are advised, and it is probable that one made just after the leaves expand and before the flowers have opened would add to the efficiency of the treatment, as the fungus commences its growth quite early in the season. The liquid is applied with a force pump fitted with some kind of a spraying nozzle.

A correspondent of *The Garden* writes that the wild garden at Kew is just now very attractive with bulbs of various kinds in full flower and apparently quite at home amongst the long coarse grass. One slope is a sheet of gold with the Dutch Crocus. Besides the yellow variety, there are large purple and white forms and a host of rare species which seem to grow perfectly here. The Glory of the Snow (*Chionodoxa Lucilia*) has also made a home here, and from its scattered condition the bulbs seem to have produced seed freely. Should this prove correct we have here a splendid subject for naturalizing in the uncultivated portions of our gardens. It is perfectly hardy, taking good care of itself, and is withal one of the most beautiful of our early spring flowers. Near by are the Squills, *S. Siberica* and *S. bifolia*. Narcissi are also here by the hundred thousand, we are told. The higher parts of the mound are at present white with *N. pallidus præcox*, and should it become established here, which seems likely, so far as one can judge, it will be beautiful in the years to come. On the lower ground *Triteleia uniflora* is coming up strongly, and so are Primroses of all kinds, and on the sunny side are innumerable Tulips, Hyacinths, *Anemone fulgens*, Hepaticas and various Daffodils, prominent amongst them being the double Telamonius, which has already formed quite a sea of glaucous green foliage. Nearly all these bulbs would be equally at home in our own gardens and they all bloom at a season when flowers are especially charming.

Catalogues Received.

P. H. Foster, Babylon, Long Island, N. Y.; Deciduous Trees Evergreens, Roses, etc.—H. B. May, Dyson's Lane Nurseries, Upper Edmonton, England; Ferns and Fine Foliage Plants.—Lewis Roesch, Fredonia, N. Y.; Grape Vines, Small Fruit Plants, etc.—T. C. Thurlow, Cherry Hill Nursery, West Newbury, Mass.; Deciduous Trees, Evergreens, Fruit Trees, etc.—J. H. Tryon, Willoughby, O.; Grapes.